EDITORIAL COMMENT

Apoptosis-related Markers for Predicting Progression of Prostate Cancer

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Finding powerful predictors in guiding prostate cancer treatment strategy and modalities is an important goal of urologists. These markers may also serve as new targets for prostate cancer therapy.

Deregulation of apoptosis is involved in prostate cancer development and progression. p21(WAF1/CIP1) and p27(kip1) proteins are key cell cycle regulators and parts of cyclin-dependent kinase (Cdks), which are important factors involved in the regulation of cellular proliferation and programmed death (apoptosis). p27(kip1) protein binds to cyclin-E-Cdk2 and counteracts cell mitosis, and is frequently mutated in various human cancers.[1] p21(WAF1/CIP1) and p27(kip1) proteins are closely related to p53 molecules with oncogenic properties. The commonly mutated *p53* oncogene is related to carcinogenesis and disease progression of cancers, including bladder and prostate cancers.

In human prostate cancer, the frequent down-regulation of p27(kip1) protein expression is correlated with poor clinical outcomes.[2] It possesses dosage-sensitive positive as well as negative modulatory roles in prostate cancer progression. Drug and gene target therapy trials targeting p27(kip1) have been conducted in animals.[3,4] The preliminary results are promising.

In this issue, Wu et al conclude that p21(WAF1/CIP1) and p27(kip1) protein expression have no role in predicting biochemical relapse for stage pT2 prostate cancers based on study results from limited cases.[5] The methodologies used in performing immunohistochemistry and cutoff point selection in reading will usually influence the outcomes. Nevertheless, the use of both p21 and p27 proteins in correlation with Gleason score, tumor grade,[6] and serum prostate specific antigen level,[7] and in predicting the likelihood of therapeutic response and survival in patients with prostate cancer[8] remain controversial. Further large-scale evaluation of both apoptosis-related markers in prostate cancer is needed before we can consolidate these conclusions.

References

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